31.(Amended) A method of depositing a silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor and ozone;

heating the substrate surface to a temperature of at least 480°C to about 700°C; and

illuminating the reaction volume of gas from a light source without directly exposing the substrate surface to the light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films, subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

42.(Amended) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least one dopant source;

heating the substrate surface to a temperature of at least 480°C to about 700°C; and

illuminating the reaction volume of gas from a light source without directly exposing the substrate surface to the light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

43.(Amended) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least two dopant sources;

heating the substrate surface to a temperature of at least 480°C to about 700°C; and

illuminating the reaction volume of gas from a light source to increase the functional

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atomic oxygen concentration and reduce the fixed charge in the deposited films; and
subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

45.(Amended) A method of depositing a borophosphosilicate glass layer on a substrate surface, comprising:

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heating the substrate surface to a temperature of at least 480°C to about 700°C;

contacting the substrate surface with a reaction volume of gas, wherein the reaction volume of gas comprises:

a SiO_2 precursor selected from the group consisting of TEOS (tetraethylorthosilicate), TMCTS (tetramethylcyclotetrasiloxane), DES (diethylsilane), DTBS (ditertiarybutylsilane) and TMOS (tetramethylorthosilicate);

a dopant source for boron selected from the group consisting of triisopropylborate, TMB (trimethylborate), and TEB (triethylborate); and

a dopant source for phosphorus selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate) and TMPi (trimethylphosphite); [and]

illuminating the reaction volume of gas from a high intensity light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

46.(Amended) A method of depositing a fluorosilicate glass layer on a substrate surface, comprising:

heating the substrate surface to a temperature of at least 480°C to about 700°C;

contacting the substrate surface with a reaction volume of gas comprising a fluorinated SiO_2 precursor and ozone; and

illuminating the reaction volume of gas from a light source to increase the functional

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atomic oxygen concentration and reduce the fixed charge in the deposited films; and
subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the fluorosilicate layer.

47. (Amended) A method of depositing a doped fluorosilicate glass layer on a substrate surface, comprising:

heating the substrate surface to a temperature of at least 480°C to about 700°C;

contacting the substrate surface with a reaction volume of gas comprising a fluorinated SiO_2 precursor, ozone and at least one dopant source; and

illuminating the reaction volume of gas from a light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

48.(Amended) A method of depositing a doped fluorosilicate glass layer on a substrate surface, comprising:

heating the substrate surface to a temperature of at least 480°C to about 700°C;

contacting the substrate surface with a reaction volume of gas comprising a fluorinated SiO_2 precursor, ozone and at least two dopant sources; and

illuminating the reaction volume of gas from a high-intensity light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the fluorosilicate layer.

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50.(Amended) A method of depositing a fluoroborophosphosilicate glass layer on a substrate surface, comprising:

heating the substrate surface to a temperature of at least 480°C to about 700°C;

contacting the substrate surface with a reaction volume of gas, wherein the reaction volume of gas comprises:

a SiO_2 precursor comprising FTES (fluorotriethoxysilane);

a dopant source for boron selected from the group consisting of triisopropylborate, TMB (trimethylborate), and TEB (triethylborate); and

a dopant source for phosphorus selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate) and TMPi (trimethylphosphite); and

illuminating the reaction volume of gas from a high intensity light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the fluoroborophosphosilicate layer.

51.(Amended) A method of depositing a silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor and ozone;

heating the substrate surface to a temperature of at least 480°C to about 700°C; and

illuminating the reaction volume of gas from a light source comprising mercury arc vapor lamps without directly exposing the substrate surface to the light source to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

52.(Amended) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least one dopant source;

heating the substrate surface to a temperature of at least 480°C to about 700°C; and

illuminating the reaction volume of gas from a light source comprising mercury arc vapor lamps without directly exposing the substrate surface to the light source to

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increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

53. (Amended) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

heating the substrate surface to a temperature of at least 480°C to about 700°C;

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least two dopant sources; and

illuminating the reaction volume of gas from a light source comprising mercury arc vapor lamps to increase the functional atomic oxygen concentration and reduce the fixed charge in the deposited films; and

subjecting the reaction volume of gas to a pressure of approximately 200 to 760 torr during deposition of the silicon dioxide layer.

REMARKS

Claims 1, 31, 42-43, 45-48, and 50-53 are amended to state that in the processes thereof, the reaction volume of gas is subjected to a pressure of approximately 200 to 760 Torr during deposition. This amendment is supported in the specification at page 7, lines 3-15. No new matter is introduced thereby. Claim 37 has been canceled without prejudice or disclaimer thereto. Claims 1-6, 31-36 and 38-54 are now pending in this application.

§112 Rejection of the Claims

Claims 1, 2, 4-6, 31-54 were rejected under 35 USC § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Applicant asserts that if a range of about 200-700 degrees C is supported by the